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214505US-8-PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: :

YUICHI WATANABE : ATTN: APPLICATION DIVISION

SERIAL NO: NEW U.S. PCT APPLN :
(Based on PCT/JP01/00885)

FILED: HEREWITH : EXAMINER:

FOR: APPARATUS AND CIRCUIT FOR :
POWER SUPPLY, AND APPARATUS
FOR CONTROLLING LARGE CURRENT
LOAD

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Prior to a first examination on the merits, please amend the above-identified application as follows:

IN THE SPECIFICATION

Page 8, beginning lines 2-16, delete the existing paragraph and replace it with the following paragraph:

In this control apparatus, however, the power MOS-FET used as the switching element of on/off control generates much heat. Therefore, it is necessary to perform the radiation design accurately. A channel temperature $T_{ch\ max}$ of the power MOS-FET is calculated as

$$T_{ch\ max} = (T_a\ max) + (R_{on\ max}) \times (I_o\ max)$$

$$\times (I_o\ max) \times R_{th\ (ch-a)}$$

$$= 85^\circ\text{C} + 0.013\Omega \times 10\text{A} \times 10\text{A} \times 50^\circ\text{C/W}$$

$$= 150^\circ\text{C}$$

where Ta max: ambient temperature

Ron max: on-resistance

Io max: current value

Rth (ch-a): thermal resistance between channel and environment.

REMARKS

The present preliminary amendment is submitted to correct for a minor informality in the specification, which is deemed to be self-evident from the original disclosure.

The present application is believed to be in condition for a full and thorough examination on the merits. An early and favorable consideration of the present application is hereby respectfully requested.

Respectfully submitted,

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Serial No: _____
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IN THE SPECIFICATION

Page 8, beginning line 5, delete the existing paragraph and replace it with the following paragraph:

--In this control apparatus, however, the power MOS-FET used as the switching element of on/off control generates much heat. Therefore, it is necessary to perform the radiation design accurately. A channel temperature Tch max of the power MOS-FET is calculated as

$$\begin{aligned} T_{ch\ max} &= (T_{a\ max}) + (R_{on\ max}) \times (I_{o\ max}) \\ &\quad \times (I_{o\ max}) \times R_{th\ (ch-a)} \quad [\dots (10)] \\ &= 85^\circ\text{C} + 0.013\Omega \times 10\text{A} \times 10\text{A} \times 50^\circ\text{C/W} \\ &= 150^\circ\text{C} \end{aligned}$$

where Ta max: ambient temperature

Ron max: on-resistance

Io max: current value

Rth (ch-a): thermal resistance between channel and environment.--